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■ BIBLICAL HISTORY

Noah's Ark actually crossed the Atlantic, researcher thinks

Nothing is as exciting as the exploration of Man's past. And nothing is more fascinating than filling in the blank spots in our history.

One can almost say that the whole thing started with Heinrich Schliemann, the amateur archeologist who, as a young boy, devoured Homer's *Iliad* and who refused to come to terms with the contention that the battle for Troy sprang from a poet's imagination.

Schliemann searched for and discovered Troy.

The Hamburg journalist Gerd von Hassler seized upon a much more important event in world history, namely the Great Flood with which God, according to the Bible, punished Man for his sins and destroyed all life on earth — with one exception: Noah and the inhabitants of his Ark.

Hassler is convinced that this Flood is not a figment of the imagination. After all, some 80,000 publications in 72 languages deal with this subject.

The journalist's studies are based on the writings of antiquity, above all the *Gilgamesch Epic* (he was a Sumerian king in the period between 2750 and 2600 BC).

Schliemann's son Paul, the researcher Otto Muck (*Alles über Atlantis — Everything About Atlantis* — published by Egon Verlag) and the American Charles Berlitz (*The Bermuda Triangle*) are convinced that the Flood took place 10,000 years ago when the earth's axis shifted by almost 25 degrees. The basic elements fire and water merged into a deadly chaos, destroying all life in wide areas.

Many scientists today suspect that a huge planetoid hit our earth at that time.

Says Hassler: "This Flood has remained in the memory of Mankind be-

cause Noah — or whatever his name might have been — survived."

How was it possible for a man to escape this world-wide catastrophe? Hassler is firmly convinced that Noah had a ship.

He bases his contention on the Bible's description of the Ark, which goes as follows: "A box with a window on top and a door in the side."

If we translate window with hatch and imagine that all hatches were tightly closed (say with tar) except for a very small manhole, the whole thing becomes feasible.

According to Herr von Hassler, "The door in the side corresponds to the gunports in naval vessels and to loading hatches in merchant ships. Only deep-sea vessels with several decks are equipped with such hatches. And exactly this is what God ordered Noah to build: a triple-decker of close to 4,000 tons GRT."

Even several thousand years later, the sea-going Phoenicians could only dream of such a vessel.

"This means," writes Hassler, "that the survivors of the Flood handed down to their descendants a technical and nautical knowledge which future generations no longer had, but which was preserved as a myth through the ages." He arrives at the conclusion that Noah would have had no trouble crossing the Atlantic in his vessel.

A similarly fascinating speculation was put forward by the controversial Erich von Däniken in his theory whereby Moses' scrolls were housed in a radar installation.

Old Indian legends in both South and North America repeatedly speak of the white, bearded gods who had come from across the sea.

According to Däniken they came from the stars while Hassler believes that they simply came from "overseas." He seeks confirmation for his views in linguistic and cultural similarities.

Thus, for instance, the Germanic god Wotan — always accompanied by a snake — suddenly appears among the Maya Indians in southern Mexico as Uotan. And how, von Hassler asks, can one explain the similarities between the buildings of the Sumerians, the Egyptians and the Mayas?

Hassler's thesis about Noah's crossing of the Atlantic also explains certain similarities between the language of the Mayas and the Greek of antiquity. "There must be limits to coincidence," says von Hassler.

Nigel Davis is much more cautious in his book "Before Columbus Came".

Replying to the contention that South America was populated by people from the South Pacific, he writes: "The presence of a handful of Polynesian words which vaguely correspond to one of the

2,000-year old languages of South America is not much to go by." And yet much of Hassler's evidence is based on such coincidental facts.

From the *Gilgamesch Epic* Hassler deduces where the Ark made its landing. According to the Epic, the survivors lived "far away at the mouth of great rivers." But where were those rivers?

Von Hassler explores all possibilities and the only convincing answer for him which tallies with the duration of the voyage and many other factors, is the Amazon River. He believes that the theory is borne out by the fact that when crossing the Atlantic, Thor Heyerdahl's *Ra II* was driven towards the Amazon by the Northeast Trades.

Hassler's interpretation is quite interesting. After the destruction of the volcanic island continent Atlantis and the resulting disastrous Flood, the Atlantic was for a long time covered by a layer of brimstone. According to that, this light mass with a thickness of some 60 metres floated on the North Atlantic.

As a result, the ferryman mentioned in the *Gilgamesch Epic* could very well have been in a position to guide the bottomed ship across the brimstone layer which would have prevented major wave formation in the Atlantic.

He could thus have taken *Gilgamesch* to the place where his sea-going forebears — the white gods — had once landed with their big sailing vessels.

It is, according to von Hassler, to these people who landed in South America that we owe the highly developed civilizations of the South American Indians.

Frauke Sell

(Hamburger Abendblatt, 2 April 1977)

Gerd von Hassler: *Noahs Weg zum Amazonas*, published by Verlagsgesellschaft R. Glöckner

New balance needed in face of terrorist threat

DER TAGESSPIEGEL

It is still too early even to hazard a guess as to the mark that escalating terrorist brutality and a brand of terror that increasingly defies rational political explanation will make on State and society in this country.

Paradoxically enough, the very origins and continued existence of urban terrorism are due in no small measure to the fact that this country boasts one of the most open and democratic systems there could possibly be.

One need hardly explain why an open society is specially vulnerable to acts of violence. The culprit has at his disposal all the facilities we treasure, and rightly so, as freedom from excessive government regimentation.

Free from excessive government intervention in the conduct of his daily affairs, the terrorist is at liberty to seek refuge behind society's scale of values in order to snipe at these very values.

This country can pride itself on enjoying the greatest degree of constitutional freedom a German State has ever boasted. Bonn chose to opt for constitutional liberties because Germans had just undergone an era in which the totalitarian State had reached rock bottom.

Basic rights of the individual are constitutionally guaranteed and the system of government is run on federal lines with a view to forestalling excessive resort to authority even though government may prove less effective as a result.

Yet this country has proved extremely effective, which will have come as a surprise to sceptics, while others may feel it demonstrates how right we were to place our trust in democracy.

It is fair, to assume that in the long run our system of democratic government will not even be shaken by the activities of politically-motivated advocates of violence as long as people in this country retain confidence in and loyalty towards democracy.

It is substantially more difficult to see why our open society can have given rise to terrorism. Maybe by virtue of the very fact that it spurns both violence and authority?

In an open society, groups that are sold on certain ideological notions and fascinated by certain higher objectives to which, they feel, State and society must be subordinated, will tend to feel that the prevailing system is decadent, boring and deserving of a swift and violent demise.

In an open society discussion must be held and support canvassed. It is extremely difficult to set change in motion, especially sweeping changes of a specific nature.

The more radical the objectives, the more difficult it is to gain support, with the result that before long a number of firebrands will try to cut the Gordian knot by resorting to violence.

Having failed to mobilise mass support, they are branded as outsiders, and since they seem likely to remain so they decide to make a virtue out of necessity and heighten their outsider status by resorting to terrorism.

In other words, the open society will tend to spawn desperadoes by virtue of the very fact that it affords protection from an extremist takeover and subordination to radical objectives.

What is more, the more starkly the general feeling of prosperity and well-being stands in contrast to the emotional tenor of the extremists, the more likely an open society is to spawn desperadoes.

This, then, is the state of affairs that has led to the situation with which we are now confronted. We must redouble our efforts, including those of the government and its agencies, while at the same time taking care to ensure that the open society does not pass a point of no return at which the State forfeits its legitimacy.

Terrorism must be dealt with, but not by sacrificing the values that make an open society what it is. We must not allow terrorist provocation to make the accusations the urban guerrillas level at society self-fulfilling prophecies.

A new balance must be established in the face of threat, a balance recently defined as follows by *Neue Zürcher Zeitung*:

"There may be more deaths but the State need not collapse as a result. Confidence in a system of government that enjoys majority support in the country at large entails a twofold determination.

"While there must be no question of premature restrictions on basic rights people must also be prepared to accept genuinely necessary measures to maintain public security without immediately prophesying that the writing is on the wall for liberal democracy in the Federal Republic of Germany."

In the context of continual endeavours to strike a balance the way this country is viewed by its European neighbours may well be important.

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Chancellor Helmut Schmidt, Foreign Minister Hans-Dietrich Genscher and state secretary Andreas von Schöler of the Interior Ministry (from right to left) are seen on the government front bench in the Bundestag on 8 September as the House observed two minutes' silence as a mark of respect to the men who lost their lives in the terrorist abduction of employers' leader Hanns-Martin Schleyer. (Photo: dpa)

Views and reactions voiced by neighbouring European countries can prove helpful; they can also bedevil relations between countries for far too long giving rise to anxiety and alarm.

Take, for instance, what has proved a far from uncommon French viewpoint on terrorist violence in this country. A number of French commentators are talking in terms of a sick society at long last testifying to its inner contradictions.

This country's democratic government is smugly made out to be virtually on a par with its urban guerrillas. The extreme power of the State is contrasted with extreme radicals or even "advocates of progress" who are at war with the State.

The French really must have felt this country to have been an intolerable burden as long as it appeared to be a smoothly-running, unruffled and powerful democracy. The discovery that society in this country too has its ills must have come as a relief; it certainly comes as a change from bad news about France.

Le Monde has been particularly keen to throw stones at this country. This is hardly surprising, since the prestigious Paris newspaper is no longer as independent in editorial opinion as it once was.

It now backs the Union of the Left, France's electoral alliance of Socialists and Communists, and appears to be at the labour movement in Europe as a whole.

Herr Voigt claims that if such a distorted view of the situation in this country is allowed to predominate there can no longer be any question of left-wing criticism in a spirit of solidarity and internationalism.


Continued distortion would merely testify to the reawakening of *soi-disant* left-wing but in effect nationalist prejudice in France.

True enough, the situation in France seems unlikely to lend this country

Amateur athletics World Cup may become a regular event

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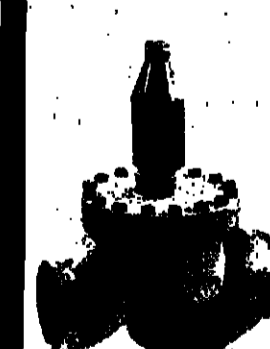
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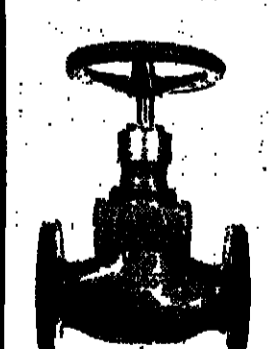
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ECONOMICS

Record profits for business giants



This country's turnover giants broke all profit records last year. Combined turnover of companies with sales exceeding 1,000 million deutschmarks increased by 8.7 per cent to just over 500,000 million marks, with profits (after tax but before reserves were set aside) up nearly 100 per cent from 6,800 to a little over 12,000 million deutschmarks.

Motor manufacturers and civil engineering contractors made the running, and not by dint of manpower cuts either. Payroll figures almost invariably indicate that more staff means higher turnover and profits.

Construction companies among the top hundred did most of their building abroad. Hochtief carried out seventy per cent more construction work abroad than in 1975. Beton- und Monierbau 84 per cent more, while Philipp Holzmann stepped up contract work abroad by no less than 107 per cent.

The top ten civil engineering firms

accounted for nearly ninety per cent of foreign construction contracts - a total of roughly 12,300 million deutschmarks. Several leading companies are again not listed because they prefer not to disclose trading figures. They include, for instance, Beteiligungs and Coca Cola. What they hope to gain from this reticence is hard to see; it is a mystery even to their competitors.

Other companies, such as Deutsche Marathon Petroleum, were not listed despite turnover in this firm's case of 1,500 million deutschmarks, the reason being that they are mainly traders, not manufacturers.

Classification according to turnover presents problems in any case, with published figures varying substantially from one publication to another. Turnover can be defined in a number of ways.

Many companies issue three different balance sheets, one for the parent company, one for the parent company and its domestic subsidiaries in which a majority shareholding is held and a third for group turnover, profits and payroll all over the world.

In the case of Hoechst Chemicals the last-named category includes 466 companies of which 416 are registered abroad.

Since there are no generally accepted rules and regulations of accountancy governing balance sheets for worldwide operations, the figures cannot always be directly compared.

They certainly convey a realistic impression of this country's top 100 companies as they see themselves, however.

(Die Zeit, 2 September 1977)

The top 100 firms in this country

Table with columns: Ranking, Company, Industry, 1976 turnover, % change, Profit % in DM million, Payroll at end of 1976, % change. Lists top 100 firms including Veba, Hoechst, BASF, Daimler-Benz, Bayer, Siemens, Thyssen, AEG-Telefunken, etc.

Table: Top ten trading companies. Columns: Rank, Company, 1976 turnover in DM million, % change over 1975, Trading surplus in DM million. Lists Thyssen Handelsunion, Stinnes, Tonhofer, Deutsche Spar, Karstadt, etc.

The two trading divisions of larger groups in the top ten came first and second. Raab Karstadt, Veba subsidiary, as is Stinnes, totalled DM7,043m in turnover last year but came eleventh in the deduction of DM1,384m in oil duties. For the same reason Aral, whose turnover includes oil duties totalled DM8,953m and would have rated third place, came fifteenth, trailing behind Hiltl and Rewe-Zentrale.

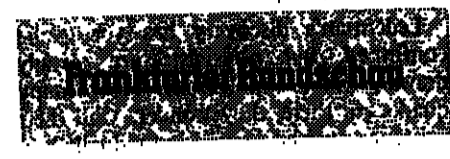
Table: Top ten employers. Columns: Rank, Company, 1976 Percentage change, Payroll. Lists Bundespost, Bundesbahn, Siemens, Hoechst, VW, Bayer, AEG-Telefunken, Daimler-Benz, Ruhrkohle, Thyssen.

At the end of last year the top ten employers between them employed a payroll of 2.29 million, or nearly ten per cent of the privately employed. This figure was down marginally, by 36,171, on the previous year. But these figures are slightly misleading inasmuch as manufacturers include foreign and overseas staff. The Bayer group, for instance, employs 171,200 people all over the world but only 64,336 in this country. AEG-Telefunken, on the other hand, employ only 30,100 but abroad. The increase in Siemens' payroll is due to the takeover of Gram.

Table: Detailed list of 100 companies with columns: Ranking, Company, Industry, 1976 turnover, % change, Profit % in DM million, Payroll at end of 1976, % change. Includes companies like Werhahn, Rütgerswerke, Bosch-Siemens, etc.

TECHNOLOGY

All the latest in sight and sound at the Berlin radio show



Never before has Karl Mende, the country's second-largest manufacturer of TV sets, exhibited so many new models at a Berlin radio show. Yet the two that are probably most important are not for sale.

One is a colour TV set with a built-in micro-computer; this is a model he intends to manufacture, but he is not yet sure when.

The other is a colour TV specially equipped to handle video data services and the like which is not scheduled to be marketed until 1982.

It is a slack year for radio show exhibitors, of course, with neither an Olympics nor a soccer World Cup to send customers flocking to the TV dealers' showrooms.

This year the Berlin radio show is the only major sales pitch, and both TV channels are doing their best to publicise it. The Berlin radio show is, after all, undoubtedly the largest trade fair of its kind in Europe, and maybe in the world.

No one would deny that the main purpose of the radio show is to boost sales. Fifty per cent of households in this country have colour TV sets, and nearly everyone has hi-fi or stereo equipment.

From 1980 on audiovision is expected to prove the next major market - video, in other words. So the sights are already being set.

Incorporation of a micro-computer in colour TV sets is unquestionably a major advance. Karl Mende may wonder whether he has not been too ambitious, but Blaupunkt and Siemens are already marketing micro-computer models.

Market saturation, says Blaupunkt's Dr Siegle, necessitates a wider range of models, and computerisation marks a new departure in comfort at the upper end of the range.

The major manufacturers' respective ranges certainly testify to a difference in outlook. Blaupunkt and Siemens sell sophisticated models requiring a degree of familiarity with the operating instructions, whereas Nordmende apparently have less confidence in their customers.

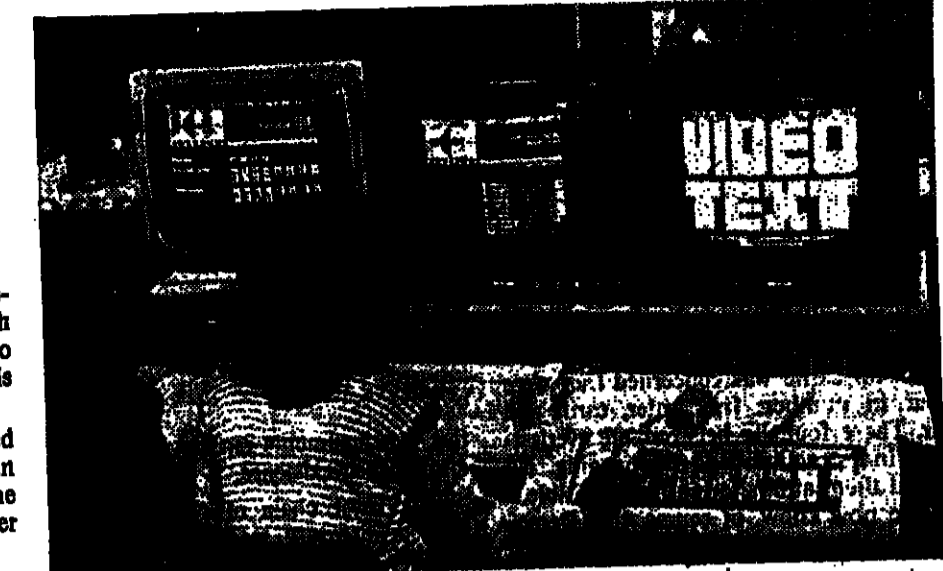
Nordmende sets are certainly easier to programme, but at the same time less versatile. Electronic programme selection is limited to nine options that can be preset no more than 24 hours in advance.

Blaupunkt and Siemens micro-computerised sets, on the other hand, can store up to twenty commands given up to a year in advance or repeated daily until such time as the instructions are cancelled.

When Blaupunkt and Siemens sets are programmed an electronic device must first scan the available channels to locate programmes.

The Nordmende set does not require this additional feature. If you know what channel local transmissions are screened on you can dial it direct.

With the Nordmende receiver viewers can dial by remote control up to 29



A Videotext display at the show. (Photo: dpa)

presented difficulties in respect of cassette tape decks.

Hi-fi tape decks call for such complex electronics that they cost much the same as conventional tape recorders of comparable quality (which is easier to achieve with higher tape speeds).

Cassettes, however, are easier to handle. Japanese manufacturers are trying to launch a larger cassette which runs at higher speeds. The quality is undeniably better, but then the price is higher. The new cassette has probably arrived too late to gain a significant share of the market.

Stereo devices with separate tuner, speakers and record deck are growing increasingly up-market. In the medium and lower price-brackets combined record-players and radios or tape decks are gaining the upper hand.

The reason is, or so it would seem, that more and more customers are growing tired of the festoons of wiring needed to link up the various components.

Most manufacturers still provide quadraphony, but under the counter only, as it were, and few customers bother to enquire, which is, perhaps, hardly surprising.

The broadcasting authorities are partly to blame, since quadro transmissions are the exception rather than the rule and usually underdriven by accident rather than by design.

What is more, however, there are too few quadrophonic records and tapes available to make quadro particularly attractive, and many people who have invested in quadraphony are disappointed because it has not lived up to expectations.

For the time being broadcasters ap-

pear wholeheartedly to prefer stereo recorded with the aid of a synthetic head device, which ensures better quality.

Ambisonic, an all-round sound import from Britain, may yet reign supreme, although it did not figure prominently at the Berlin radio show.

A number of manufacturers claim that their equipment - in the higher price range, of course - can be adapted to ambisonic. Maybe the new technique will make its appearance at the next radio show in two years' time.

Technically it might well knock stereo into a cocked hat, but not mono, which is still adequate for many purposes. It should certainly prove more than a match for quadro.

The video market is in a state of flux. Despite a disappointing start Telefunken have yet to drop their ten-minute TED video disc, but are said to be interested in the VHS video cassettes developed by JVC of Japan. These new cassettes record for up to two hours.

They will, of course, be competing with the VCR cassettes, which both Grundig and Philips claim to have stepped up from sixty to 130 minutes. Other manufacturers have followed suit with VCR LP.

VHS should be available in this country by the middle of next year. The quality of its reproduction of a test card in Berlin was not entirely convincing, but improvements are promised.

JVC will also be launching a new and easy-to-handle VHS video camera which, they claim, could well replace super 8. With the recorder costing 3,000 deutschmarks or so and the camera 4,000 marks and more this claim seems fairly improvable.

A deluxe version of the VHS camera, incorporating zoom and an electronic range-finder, will probably cost 1,000 marks more. The two-hour cassette, on the other hand, will cost only sixty marks or so.

CB radio, came into its own for the first time at this year's Berlin radio show. It is a market in which Far Eastern manufacturers predominate.

The only device on show that was manufactured in this country was a car radio with CB (Citizens' Band) wave-lengths. Domestic manufacturers do not yet seem to know what to make of CB.

But, to judge by the US market, CB should prove a tremendous growth sector. It will not be cosy and intimate in the way that manufacturers claim, however. A number of police forces already tune in regularly.

CB radio, which is not unduly sophisticated, incidentally, seems sure to have a number of surprises in store.

Walter Eiler

(Frankfurter Rundschau, 3 September, 1977)

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SCIENCE

Scientists discuss structure of matter at Hamburg symposium

About 2,300 years ago Democritus, the Greek philosopher, hit on the idea that everything around us might be made up of a few basic elements.

As far as he was concerned they were four in number: fire, water, earth and air. These four, he believed, are everlasting, indestructible and unchanging. He called them atoms, meaning indivisible.

We now know, of course, that Democritus's four elements are not the last word on the subject. They are not indivisible. All that remains of his idea is the word atom.

And even the atom can no longer be regarded as indivisible and has not been since the discovery of nuclear fission by Otto Hahn, a German chemist.

Yet oddly enough there was still talk of the four basic elements of matter at a recent international congress of physicists in Hamburg. Nowadays, however, they are not atoms, but quarks.

More than five hundred scientists from thirty countries spent a week discussing research into the basic structure of matter. They were in Hamburg for the International Symposium on Lepton and Photon Interaction at High Energies, which is held every other year.

Maybe it would be as well to start with a thumbnail sketch of what has been happening recently as far as scientists specialising in elementary particle research are concerned.

Scientists have known since the early years of this century that the atom consists of three different kinds of smaller particles: electrons, protons and neutrons.

Electrons orbit the nucleus like planets orbit the Sun, while the nucleus itself is composed of positively-charged protons and neutral neutrons.

For years physicists have been trying to discover whether these atomic particles, which between them account for virtually the sum total of matter, are not in fact made up of yet smaller particles.

In 1962 a US scientist, Murray Gell-Man, published his theory that these smaller particles do exist. He reckoned there are three kinds of what he called quarks, an artificial word he borrowed from James Joyce's *Finnegan's Wake*.

In 1969 Professor Gell-Man was awarded the Nobel physics prize for his theoretical work on the subject, but his theories have yet to be scientifically proved as fact.

It was obvious at Hamburg, however, that few, if any, leading physicists doubt the existence of quarks any longer. Over the past three years the pattern of evidence has grown so closely interlinked



that few arguments can be advanced to dispute their existence.

This latest chain of research began with a discovery made in November 1974 by two other American physicists, Samuel Ting and Burton Richter.

Their discovery seemed to run counter to Gell-Man's theory inasmuch as it necessitated the addition of a fourth quark, which was dubbed "charm."

But the more the physicists came to learn about charm, the more they felt it bore out Gell-Man's theory except in one single respect, that there are four quarks, not three.

The final link in the chain of evidence available to prove the existence of "charm" was one of the three outstanding research results made public at the Hamburg conference.

Physicists working at the city's electron synchrotron, a particle accelerator known as DESY (which in German is pronounced "Daisy"), have discovered what is known as the F meson, a particle which is phenomenally difficult to prove exists and consists of a charm quark and

a strange quark (which are two different kinds of quark).

The combinations of charm quarks and the other two varieties, which are known as up and down quarks (for want of a better name), had already been discovered.

A second major event at the Hamburg congress concerned not the heavy elementary particles, the hadrons, but the lightweight particles, the best known of which is the electron.

Physicists term these lightweight particles leptons, and in recent months final doubts as to the existence of a superheavy brother of the electron, the so-called heavy lepton, which is 4,000 times heavier than the electron, have been dispelled.

With the confirmation of the heavy lepton's existence the number of leptons has probably increased from four to six, since a neutron counterpart may be presumed to exist and has been dubbed the heavy neutrino.

The existence of more than four leptons has started physicists thinking, since they tend to feel that leptons and quarks ought to be equal in number. In other words, there would seem to be more than four quarks too.

In Hamburg another American physicist, Professor Leon Lederman, provided

the first pointer to the existence of a fifth quark. This, then, was the first major discovery unveiled in Hamburg.

At the Fermi laboratories near Chicago Professor Lederman has discovered a particle that is ten times heavier than a hydrogen atom and boasts properties that can only be explained by assuming it to be a fifth quark.

Lederman's discovery has yet to be confirmed, but physicists are already drawing their conclusions. How many quarks are there, they wonder. Will their existence ever be proved individually?

If, for that matter, there are many more varieties of quark awaiting discovery, which Professor Lederman suspects is the case, will they turn out to be the smallest particles of matter or are they too made up of yet smaller particles?

These queries can only be answered with the aid of still larger research devices. Already the largest particle accelerators in use are four miles in circumference and cost hundreds of millions of Deutschmarks.

One country alone will soon no longer be able to foot the bill of basic research in this sector, although the US generation of accelerators, Petra in Hamburg and Pep in Stanford, California, will still be built under the aegis of individual countries.

Talks are, however, under way with a view to international cooperation on the next generation but one, which will be particle accelerators with a circumference of up to thirty miles.

Reiner Korbmann

(Hannoversche Allgemeine, 2 September 1977)

One day we'll have a phone up our sleeves

Shades of Dick Tracy! Something like the wrist radio that the US comic strip hero detective uses in his fight against crime may soon become reality.

Scientists attending the 26th congress of the Hermann Oberth Association in Berlin this month heard about a new type of mini-telephone, equipped with microphone and transceiver, which can be strapped to the wrist like a quartz wristwatch.

Professor Philipp Hartl of Berlin's Technical University, said this latest scientific gadget would be useful not only in space travel. Right here on Earth it could, within a few years, be used via satellites, to enable 100 million people to easily talk to each other.

And thanks to space technology it is not only "total communication" which is now about to be made possible. Scientists also hotly debated the question of how we can leave our solar system and set up communities on other planets in the Milky Way.

This included suggestions which laymen today would still consider as part of some far-off Utopia, but which serious scientists put forward as definitely within the realms of stark possibility.

For instance, Professor F. Winterberg, of the University of Nevada, suggested sending a complete self-contained community into Space. In fact his proposal envisaged an artificial type of city contained in a type of saucer with a diameter of one kilometre and 50 metres long.

This type of fantastic project shows that some prophets of what's-to-come-in-the-space-travel field are barely able to free themselves from their predisposition towards gigantic undertakings.

Be this as it may, Professor Winterberg did not think his space cylinder would become a reality for another 100 or even 200 years.

Other lecturers concentrated more on finding better and more efficient ways of fuelling future spaceships.

Current chemical fuels in use enable spaceships to attain speeds which are of use only within our known solar system.

If one wanted to fly to the nearest star in the Milky Way, for instance using today's known means of propulsion, one would need hundreds of thousands of years to get there.

Among suggestions at the Berlin space conference was the use of electric propulsion units which would enable ionised gas to be propelled at extraordinarily high speed. Scientists also considered the possibilities of atomic propulsion including the fusion rocket — although it will take decades before that will be able to adequately control the fusion process in laboratories on Earth.

Meanwhile, space experts are already dreaming of achieving the highest speed possible in space: the speed of light.

Theoretically we already know how to attain this speed. Matter, joined with so-called anti-matter, would be transformed 100 per cent into energy and thereby provide a laser-like light beam to power rockets.

But to achieve this, all the energy available on Earth would have to be brought into play — which means that this idea will no doubt remain no more than an idea for a long time to come.

(Frankfurter Allgemeine Zeitung für Deutschland, 6 September 1977)

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MEDICINE

Doctors discuss causes of heart attacks at Karlsruhe congress



Anxiety about the heart attack hazard is widespread, and justifiably so. An increasing number of relatively young people are suffering heart attacks, many of which prove fatal.

For years there have been pet theories about what causes heart attacks, so much so that what might almost be termed ideologies have arisen and controversy has raged.

A platform discussion on The Heart Attack, Risk Factors, Realities or Ideologies? formed part of a recent therapy congress in Karlsruhe chaired by Professor Max Joseph Halhuber, director of Königshöhenried heart clinic.

The discussion was intended to clarify the situation, but as it happened it may well have left many doctors who attended even more confused than they were beforehand.

For years smoking, high blood pressure, a poorly balanced diet, lack of exercise and so-called psycho-social stress have been deemed responsible, in varying degrees and orders of importance, for the increase in heart attack cases.

They are all factors that could, in theory, be eliminated — if only, that is, we were capable of coping with ourselves and others. Thus the heart attack would seem to be a model complaint for elimination by means of preventive measures.

Heidelberg physiologist Professor Hans Schaefer, a specialist in social medicine, outlined in Karlsruhe a provocative set of theories designed to break havoc with accepted views on the subject.

It is far too early as yet to draw up a general theory of the heart attack, he claimed. So many inter-related factors are involved and too little is known about their inter-relationships.

Professor Halhuber, he felt, was taking the easy way out by referring to the WHO definition, which is that the heart attack is clearly characterised by pain and enzyme and electrocardiogram changes.

Professor Hans Erhard Bock, who has held overall responsibility for the therapy congress for many years, seconded Professor Halhuber, however, by reiterating the classic tenet that the heart attack is due to a coronary occlusion or thrombosis.

This classic theory has unfortunately fallen into slight disrepute inasmuch as it forms part of a controversial view held by a medical outsider, Stuttgart internal specialist Dr Berthold Kern, and his supporters.

Dr Kern and his somewhat fanatical associates draw a distinction between what they call a coronarogenic heart attack and a myocardogenic heart attack.

The one is due to coronary failure, the other to a failure of the heart muscle, which, or so the Kernites claim, calls for special treatment, particularly a course of strophanthin tablets.

Dr Kern's pseudo-scientific attacks on established theory have wrought much havoc, but they ought not to be allowed to result in their more conventional op-

ponents growing equally fanatical in advancing their views.

One established and surely undeniable fact is that a heart attack is due first and foremost to a discrepancy between supply and demand for oxygen, however caused.

When certain sections of the heart muscle which must have a regular oxygen supply to keep up its punishing nonstop work suddenly get too little oxygen they to all intents and purposes asphyxiate.

Cardiac muscle cells in the area in question die, causing the attack. Depending on the extent and location of the attack, the functions of the heart as a whole may be seriously impaired.

Oxygen supply is not the sole criterion, however, as Professor Schaefer pointed out. There are a number of others, although their individual effect cannot as yet be ascertained.

There are, for instance, the electrolytes, which play a part in the metabolism of heart muscle cells. The first and foremost of these is calcium.

Then there is the way in which nerve stimuli are passed on to the coronaries, which is as yet a complete mystery. All that is known is that the coronary vessels contract when certain stimuli are passed through the vagus nerve by means of acetylcholin, the carrier substance.

Professor Schaefer is convinced that most coronary thromboses occur after the heart attack, not beforehand. Thus the classic theory explaining how heart attacks are caused must be abandoned or at least expanded, and not because it is wrong, but because it is too one-sided.

Professor Ebstein from Zürich, a Swiss specialist in social medicine, dealt with a number of assertions he termed either wrong or partly wrong. They related mainly to the role of dietary imbalance in causing either heart attacks or sclerosis.

It is wrong, he said, to maintain that the causes of arterial sclerosis are unknown, that hereditary factors rather than environmental influences play a

crucial part in the causation of heart attacks and that dietary changes, especially in relation to fats, cannot reduce the risk in either case.

Professor Ebstein sought in great detail to back up his contention that arterial sclerosis, coronary thrombosis and the various risk factors are to a large extent causally connected.

This, he said, was why he is in favour of retaining the established term "risk factor" rather than replacing it with the concept "risk indicator."

Professor Schaefer, on the other hand, was only prepared to class as risk factors those which are measurable in the context of body and soul and can demonstrably be shown to lead to the complaint in question.

He felt it was important to draw a distinction between risk indicators and more tangible, measurable factors which can be taken as a sure sign that the patient is more likely to suffer from the complaint than might otherwise be the case.

Professor Schaefer referred in this context to Swedish work on identical and unidentical twins which came to an interesting conclusion. Unidentical twins, it appears, stand the same risk of suffering a heart attack as anyone else, always assuming that risk factors were the same.

The influence of classical risk factors is extremely slight where heart attacks among identical twins are concerned. This might seem to indicate that heart attacks are hereditary after all, despite what Professor Ebstein felt.

The Swedish research project certainly appears to prove that heart attacks can be personality-linked. Thus the risk of suffering from a heart attack would depend to some extent on the emotional make-up of the individual.

Heart attacks definitely do not come like a bolt out of the blue. There are definite hormone and other biochemical processes that occur simultaneously, consecutively, contrarily and whatever.

As yet they remain to be defined clearly, but a clear definition will prove possible sooner or later. Current lack of scientific clarity is no excuse for making do with conventional, hand-me-down, relatively simple theories to explain how heart attacks are caused.

Wilhelm Girstenbrey (Hannoversche Allgemeine, 1 September 1977)

Thalidomide lessons have still not been learnt, warns doctor



Sixteen years after thalidomide the lessons have still not been learnt, claims Frankfurt paediatrician Professor Otto Hoevens.

Opening a refresher course for pharmacists at Travenmünde on 29 August Professor Hoevens noted that drug consumption during the first six months of pregnancy has quadrupled over the past ten years.

Yet since the thalidomide affair it has been generally agreed that pregnant women should be prescribed as few drugs as possible, especially during the early stages of pregnancy.

Towards the end of pregnancy too, he added, drug consumption in 1971 was three times higher than it had been in 1961. In his view too little is known about organic processes that take place during pregnancy for drugs to be taken by a pregnant woman at positively no risk to the unborn child.

Medical science does not even know, for instance, how the unborn child disposes of medicine or indeed the role played in this process by the placenta.

Miscarriages may result, the professor pointed out. So may deformities, growth impediments or disturbed adjustment to life outside the womb.

As for medicine taken during childbirth, it may endanger the baby's chances of survival, Professor Hoevens claims. The extent of damage done

Doctor blames mistaking of 'cheer-up' pills for rising suicide rate



The weather has been none too good this summer and on average there has been one suicide every three quarters of an hour. In the letters they left behind suicides have actually referred to the nonstop rain as one of the reasons why they have decided to end all.

They also refer to poor employment prospects, to poor prospects of peace and to the fact that the world in general is bad as contributory factors.

Suicides have certainly increased in number of late, and Professor M. Bickel of Berne University attributes increase to the misuse of medicines: are intended to forestall suicide.

"A healthy individual will not commit suicide," Viennese suicide specialist professor Erwin Ringel claim, and this is widely shared.

Would-be suicides are invariably in psychic trouble of one kind or another. The decision is usually taken in a state of depression.

There is now a whole range of anti-depressive drugs. They work by cheering people up. Professor Bickel has discovered that most anti-depressives have a two-phase effect.

They start by stepping up psychomotorial drive, stimulating activity and the powers of decision. Then they cheer the patient up. So the patient may feel the urge to act before he feels less depressed.

If the worst comes to the worst he may resolve to commit suicide. He certainly has the means at his command. An overdose of the pills he has just taken may easily have the desired effect.

Professor Bickel feels the problem is an urgent one because depression is increased by leaps and bounds in recent years. According to the latest WHO statistics between three and five per cent of world's population suffer from recurring bouts of depression.

This figure has long been overrated. Continued on page 14

PUGWASH CONFERENCE

300 delegates attend this year's discussions in Munich

This year's Pugwash conference met in Munich. It is a group of scientists from more than thirty countries who meet to review problems arising from scientific progress and the development of weapons of mass destruction. At Munich delegates agreed that disarmament alone will forestall the danger of a third world war.

Sixty-five years ago," Philip Noel-Baker recalled, "I spent some time in the sun, listening to music and laughing, and in happy friendship with young Germans in Munich."

He went swimming in the Starnberger See, mountaineering near Kufstein and felt happy in the years leading up to the First World War.

Nowadays Lord Noel-Baker, 88, who was awarded the Nobel peace prize in 1959, is more sceptical of an era that was followed by two successive World Wars.

More than 300 delegates at this year's Pugwash conference in Munich gave him a standing ovation, but his personal recollections eloquently demonstrated how ineffective good will alone is in bringing about international disarmament.

Lord Noel-Baker described with a note of resignation how he had been associated with the drafting of disarmament treaties in the aftermath of the First World War.

When every final detail had been settled one solitary superpower boycotted the agreement. It happened to be his own country, Britain, which was more influential in those days.

"It was strategic nonsense, as we all pointed out at the time," Lord Noel-Baker recalled. He appealed to the Great Powers to show common sense now at least, in 1977. "Disband troops and destroy weapons of an offensive nature that serve purposes of aggression."

Such hopes, which have proved ineffective on more than one occasion in history, were the keynote of the first Pugwash public debate, whereas delegates observed strict silence about what was discussed in working parties.

They were well advised to do so, or so critics from their own ranks claimed who no longer feel able to hide their dissatisfaction with the current lack of influence of a scientific pressure group that used to be an effective force for peace.

This country's Carl Friedrich von Weizsäcker likewise felt "completely disillusioned" with the Munich Pugwash conference, held exactly twenty years after the first conference in Pugwash, Nova Scotia.

Scientists do indeed seem increasingly dissatisfied with what Pugwash has to show for itself these days. Weizsäcker may feel that governments mainly ap-

preciate these gatherings of "eggheads" because they occasionally come up with ingenious solutions to specific problems, but Dr Balevski, a Bulgarian delegate, is significantly more self-critical.

Balevski reckons science has much to answer for in having provided the powers that be with the nuclear button which can end life on Earth as we know it at one fell swoop.

"We scientists will one day have a most uneasy conscience," he said. Balevski is convinced that science is chiefly responsible for the future of Mankind.

Basically anxiety is the guiding principle. "Were it not for anxiety, Mankind would be unable to survive," he claimed, "but what a worry for everyone to realise that a nuclear holocaust would leave no one unscathed."

Weizsäcker, on the other hand, is convinced the Third World War would long since have been waged were it not for the deterrent effect of the nuclear counterstrike option, which he termed "one of the most ingenious stratagems scientists ever invented."

In today's deterrent balance numerical considerations still have a major role to play, but the qualitative arms race, the race to develop ever more ingenious weapons of mass destruction, is more dangerous by far, Professor von Weizsäcker affirmed.

"Lasting disarmament is based on technical equipment which is swiftly ren-

dered obsolete," he pointed out, adding that in his opinion "the Third World War will begin on the very day the side that starts it is technically in a position to win."

Thus a number of delegates talked in terms of disarmament and were obviously trying to save their own uneasy consciences. Alexander Markov, head of the Soviet delegation, sounded a warning note about the neutron trigger sparking off nuclear warfare.

Third World delegates, on the other hand, felt concern about entirely different problems. "Peace," said Egyptian delegate Abdel Rahman, "has been mentioned a hundred times; justice not once."

He pointed out that security is very much a matter of justice and fair play. Talk of world peace means no more than that a nuclear holocaust is virtually impossible. A Soviet delegate agreed inasmuch as no one could hope to emerge as the victor of a nuclear war.

Pugwash delegates from the socialist countries may have been very much in favour of disarmament, but they went out of their way to avoid public mention of human rights.

Officially no mention was made of petitions on behalf of a former Pugwash delegate who is currently in prison in the Soviet Union. Petitions were circulated unofficially.

"There can be no peace without plain speaking," Carl Friedrich von Weizsäcker commented with the East bloc leaders in mind, but he too took good care not to be too outspoken.

He made do with expressing satisfaction that mention had at least been made of the human rights issue.

Rolf Henkel

(Kölnner Stadt-Anzeiger, 30 August 1977)

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